THE EXPECTANCIES, CAUSAL ATTRIBUTIONS, AND RECALL OF DEPRESSED AND NON-DEPRESSED SUBJECTS

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CHAPTER I

REVIEW OF THE LITERATURE

Introduction

Depression is currently one of the three leading diagnoses of people seeking treatment in mental health facilities. Estimates indicate that from 5 to 15% of the population has experienced a depression of a pathological or clinical nature (Mendels, 1970; Secunda, 1973). At present 4 to 8 million Americans may be in need of professional care for depression (Williams, Friedman, & Secunda, 1970). In addition, most people have experienced or will experience at least a mild depressive episode sometime during their lives. Despite the frequency of this disorder and the enormous public health problem it poses, relatively little research has been directed at its psychological aspects. In contrast, there is a plethora of theoretical formulation and biological research associated with depression (Beck, 1967; Brown, 1976).

According to the Diagnostic and Statistical Manual (DSM II, 1968), depression can be differentiated into one of four types: depressive neurosis, involutional meloncholia, manic-depressive psychosis (depressed type), or psychotic depressive reaction. This differentiation is based on factors such as the severity and the duration of the depression, the response to pharmacological agents, and the presence or absence of precipitating events prior to the depressive episode. Despite this variability in classification, depression is generally characterized by

feelings of guilt, sadness, hopelessness, and loneliness. Accompanying these affective states are cognitive, behavioral, and physiological changes (Beck, 1967; Friedman & Katz, 1974; Grinker, Miller, Sabshin, Nann & Nunnally, 1961; Izard, 1972; Mendels, 1970). Much of the earlier psychological literature depicts depression as primarily an affective state or mood disorder which produces changes in behavior and thought. More recently, however, this approach has been questioned and other models have been developed. These recent models emphasize the cognitive or behavioral aspects of depression. Instead of considering depression as primarily an affective disorder these newer models emphasize the view of depression as a cognitive or a behavioral disorder which produces the affective disturbances accompanying depression. At the present time it is difficult to decide which of these approaches is most accurate since the overall relationship between affect, cognition, and behavior is unclear (Izard, 1972; Lazarus & Averill, 1970). Despite the fact that the psychological models of depression emphasize different processes, frequently they overlap in their explanation of this phenomenon.

The Psychoanalytic Theories

One of the first attempts at a psychological explanation of depression came from Karl Abraham (1911). He viewed depression as originating from trauma experienced in the oral stage of development. These early developmental difficulties were followed later in life by loss. The loss could be real or imagined. It could involve the loss of someone close through death or separation or it could involve a loss of self-esteem or a value system. The result of the loss is a feeling of aggression and anger towards the lost object. However, rather than directing

the aggression at the object the individual turns the aggression inward as a result of identification with the lost object. This identification not only results in turning the anger inwards, but also results in the individual incorporating the deficiencies and weaknesses of the object. This theme of loss associated with depression presented by Abraham is found in many of the later psychological theories.

Freud (1917) did little to alter Abraham's theory of depression. He believed, however, that the loss involved in depression is at an unconscious level. The loss or rejection that the person experiences prior to a depression is actually not the loss that produces the depression. Rather, this loss is symbolic of an earlier loss experienced in the individual's early development. Freud also emphasized the importance of guilt experienced by the individual because of feelings of hostility. Also like Abraham, Freud believed that eventually the hostility is turned inwards and produces the depression.

Fenichel (1945) emphasized the dependent character of the depression-prone individual. This dependency is supposedly a result of fixation at the oral stage. Fenichel further characterized the depressed person as similar to a child who relies on external supplies as a basis for self-esteem. When the external supplies are removed the person's self-esteem is lowered. The person then attempts to force others to replenish these supplies through his or her depressive behaviors.

Klein (1948) stressed the developmental aspects associated with depression. In particular she emphasized the importance of the first year of life. She proposed that during the first year the child experiences ambivalent feelings towards the mother because the mother is unable to satisfy the child's insatiable demands. The resulting ambivalent feel-

ings take the form of alternating love and hate directed towards the mother. As a result of these feelings the child experiences a sense of fear and guilt. If the ambivalent feelings are strong enough the child continues to experience fear and guilt resulting in what Klein called a "depressive position".

Bibring (1953) stressed the role of self-esteem in influencing depression. He felt that self-esteem originates from a person's ability to achieve aspirations. The depressed person is one who is unable to meet self-expectations. This inability results in feelings of helplessness, powerlessness, and unworthiness. In contrast to the earlier theorists Bibring believed that a predisposition toward depression did not occur exclusively during the oral stage of development. He believed that a susceptibility to become depressed could be the result of experiences of frustration and helplessness at any stage of development.

Most of the psychoanalytic theories concerning depression have been based on clinical observations. The research supporting many of the psychoanalytic concepts and the dynamics of depression is sparse (Grinker et al., 1961; Mendelson, 1960). However, the bulk of the research investigates the relationship between depression and loss, and the relationship between hostility and depression. The notion that depression is brought about by a loss was given support in a study by Spitz (1946) who observed that children six months to five years of age developed a condition that he termed "anaclitic depression" when they were separated from their mothers for over five months. The infants appeared to be apathetic and weepy, reduced the amount they ate, slept irregularly, and in some instances died. If the children were reunited with their mothers their condition improved; however, they occasionally

had periods in which they regressed to their earlier depressed condition.

Brown (1961) found that 41% of 216 hospitalized depressives had lost one parent before the age of fifteen. This finding was significant when compared with the overall rate of orphanhood in England, 12%, and a group of medical patients, out of which 19.6% had lost one parent before the age of 15.

Schmale (1958) noted the high rate of depressive symptoms prior to physical illnesses in medical patients. He also noted that the patients reported some form of loss or separation prior to the depressive symptoms.

Beck, Sethi, and Tuthill (1963) found that the incidence of parental loss was higher for a high depressed group, 27%, than it was for a non-depressed group, 12%. From this finding Beck et al. concluded that the loss of a parent is an important factor in the later development of a severe depression.

Kaufman and Rosenblum (1967) observed a condition in infant monkeys that was similar to depression. This condition was brought about by separating the infant monkeys from their mothers. Their initial reaction to separation was that of listlessness followed later by a "conservation-withdrawal, and postural collapse".

Despite the apparent support for the relationship between parental loss and depression, it should be noted that many of these studies have been criticized since the higher rate of parental loss is not specific to depression and has been associated with other conditions (Gregory, 1961).

In an attempt to clarify the relationship between hostility and depression, Gershon, Cromer, and Klerman (1968) studied six depressed

females. The subjects were given the Hamilton Depressed Symptom Scale (1960) and rated on three minutes of free associations for hostility using a technique by Gottschalk, Gleser, and Springer (1963). A slight negative relationship, $r = -.11$, was found between level of depression and hostility-out. A positive correlation was found for the level of depression and hostility-in, $r = .45$. Gottschalk, Gleser, and Springer (1963) found a positive correlation, $r = .47$, between the level of depression as measured by the Beck Depression Inventory and scores on a hostility-in scale. There was a negative correlation between the level of depression and a hostility-out scale, $r = -.31$.

Several factor analytic studies (Beck, 1967; Cattell & Bjerstedt, 1966; Grinker et al., 1961; Izard, 1972) have demonstrated that the factor of hostility or aggression is present in depression. More specifically, Izard (1972) demonstrated the presence of both inner directed and outer directed hostility in depression.

Forrest and Hokanson (1975) have experimentally demonstrated the presence of inner directed hostility associated with depression. They had depressed and non-depressed subjects receive shock from a confederate in a dyadic situation. Following the shock the subjects could reciprocate with a shock or reward to the confederate, or administer self-shock of high or low intensity. It was found that overall depressed subjects administered a higher frequency of self-shock. In addition, it was found that the depressed group administered more self-shock when the shock was of high intensity than when the shock was of low intensity. In contrast, non-depressed subjects administered more self-shock in the low intensity condition than in the high intensity condition.

In summary, the psychoanalytic theories have emphasized and demon-

stated the existence of a relationship between depression and loss, and depression and hostility. However, it should be noted that the characteristics of loss and hostility have not been shown to be specific to depression.

The Behavioral Theories

The concept of reinforcement is central to the behavioral theories. It has been repeatedly demonstrated that reinforcement influences behavior (Ferster, 1958; Rotter, 1954; Skinner, 1953), accordingly, the concept of depression is explained in terms of behavior regulated by reinforcement.

Bandura (1969) characterized the depressed person as one who denies him-or herself positive self-reinforcement by setting excessively high standards for reinforcement. Bandura also stated that the depressed person compares him-or herself with models who are noted for their extraordinary achievements. By making these comparisons the individual produces aversive stimuli which maintain the depressed condition.

Ferster (1966) and Lazarus (1968) emphasized the scheduling of reinforcement as the important factor in producing and maintaining the depressive behaviors. They maintained that the depressed person is on an extinction schedule or at least on a schedule which requires large amounts of responding to produce a change in the environment. This lack of reinforcement leads to a reduction in the frequency of reinforcible behaviors. They also propose that depression can be produced by aversive stimuli which lead to aversively motivated behaviors or anxiety-reducing behaviors which interfere with reinforcible behaviors. Burgess (1968) expanded this idea and suggested that depressive behaviors are maintained by

their reinforcing consequences. Thus, behaviors such as negative verbalizations, sad facial affect, and somatic complaints are maintained by social reinforcements in the form of sympathy, interest, and concern.

Costello (1972) has taken a different approach and proposed that a general loss of reinforcer effectiveness is the primary characteristic of depression. This loss of reinforcer effectiveness is the result of biochemical changes and/or a disruption in a behavioral chain. Costello maintains that a disruption in a behavioral chain can be brought about by the loss of a single reinforcer or the loss of a discriminative stimulus in that chain. The exact mechanism between the disruption of a chain of behavior and a generalized loss of reinforcer effectiveness has not been specified nor has it been demonstrated experimentally.

Lewinsohn, Golding, Johannson, and Stewart (1968); Lewinsohn, Weinstein, and Shaw (1968); Libet and Lewinsohn (1973); Rosenberry, Weiss, and Lewinsohn (1969); and Shaffer and Lewinsohn (1971) have emphasized the depressed person's lack of social skills as an important factor in depression. Rosenberry et al. (cited in Friedman & Katz, 1974) demonstrated that the depressed persons's timing of social comments is less predictable and less homogeneous than those of a non-depressed control group. Libet and Lewinsohn (1973) also reported that the depressed individual interacts with only a few selected members of a group. They also reported that depressed individuals emit fewer positive reactions than non-depressed individuals. In addition, they observed that depressed persons had a longer action latency in comparison to non-depressed persons. Action latency was defined as the time it took a subject to respond to another subject's statements. Because of these deficits in social skills the depressed individual receives less reinforcement,

thereby maintaining his or her depressive state.

Lewinsohn (1974) expanded his view of depression by emphasizing the importance of the perceived contingent relationship between responding and reinforcement. Thus depression is not only a function of a loss of reinforcement, but also a function of a loss of control of reinforcement.

According to the behavioral theorists then, depression results from either a low level of reinforcement or from the loss of reinforcer effectiveness. Eastman (1976) has criticized the behavioral formulation of depression for their lack of specificity and for the lack of basic research supporting these theories. He points out that in talking about a low level of reinforcement it is important to consider the parameters of reinforcement and to specify these parameters. Specifically, it is unclear whether low level of reinforcement refers to frequency, duration, magnitude or the amount of behavior required to obtain the reinforcer. In addition, he argues that the direction of causation has not been clarified regarding the relationship between depression, loss of reinforcer effectiveness, and loss of reinforcible behaviors.

The Cognitive Theories

The cognitive approaches to depression are primarily concerned with the functions of perception, information processing, and memory as they are related to the depressive syndrome. Beck (1967) characterized the depressive as an individual whose pattern of thought or "schema" consists of viewing him-or herself, the world, and the future in a negative way. Moreover, the depressed person views his or her interactions with the environment as unsuccessful and punishing. The self is viewed as being inadequate and unworthy, and the future is viewed as unchanging

and a continuation of the present state. Beck referred to this cognitive orientation as the "primary triad of depression". This orientation is brought about by faulty cognitive processes that affect the individual's perceptions. The faulty processes are selected abstraction, arbitrary inference, overgeneralization, minimization of positive assets or consequences, and maximization of the negative. These cognitive processes operate in the depressed person and enable him or her to create a subjective experience that confirms his or her negative beliefs about the self, the world, and the future. For Beck then, depression is primarily a thought disorder which produces a disturbance in affect and behavior. Arieti (1963), like Beck, emphasized the cognitive aspects of depression. He proposes that depression is a consequence of the cognitive processes of evaluation and appraisal. For Arieti the treatment of depression is accomplished by a change at the cognitive level.

Loeb, Beck, Feshbach, and Wolf (1964) attempted to measure the effects of depression on perception by having a depressed and a non-depressed psychiatric group rate pictures of faces on a happiness-sadness continuum. This rating followed a prearranged success or failure in a sentence completion task. No difference was found in rating the pictures; however, there was a difference between depressed and non-depressed subjects in their expectations of future performance. The high depressed subjects showed a greater increase in expectations and mood following a success experience. Also, the depressed subjects demonstrated a lower level of expectancy and mood following a failure experience.

Loeb, Beck, Diggory, and Tuthill (1967) and Loeb, Beck, and Diggory (1971) compared the responses of depressed and non-depressed subjects to success and failure feedback on a card-sorting task. Following

success the depressed subjects probability of success estimates decreased while those of the non-depressed subjects increased. Following failure, the probability of success estimates decreased significantly for both the groups. In addition, the response time for the depressed group deteriorated less in the success condition than did the response time of the non-depressed group. Despite the depressed subjects' equivalent performance on the task they rated their performance as significantly poorer than the non-depressed group.

Friedman (1964) found that severely depressed subjects scored significantly lower on only 4% of 33 cognitive, perceptual, and psychomotor tests. However, Friedman found that the depressed subjects rated themselves more negatively on 82% of the items of the Clyde Mood Scale. Friedman (1964) also noted that depressives significantly underestimated their performance on a finger tapping test in comparison to a non-depressed control group. These results indicate that depressives' actual performance is not consistent with their low self-image.

Rosenzweig (1960) found that following a success or failure experience depressed subjects changed their self-ratings more than normals on the Osgood Semantic Differential Scale. The author concluded that depressed subjects exaggerate the evaluative aspects of the environment.

Hammen and Glass (1975) assigned depressed subjects to one of four groups. In one group subjects were asked to increase the number of pleasant events they engaged in each day over a two-week period. The other three groups were given assignments over the two-week period and served as control groups. During and at the end of two weeks the four groups' levels of depression were measured. It was found that the level of depression of the increased-activities group was not affected by the

increase in pleasurable activities. Furthermore, it was found that subjects engaged in more of the reinforcing activities rated the events less positively than subjects in the other groups. These findings demonstrate the inadequacy of using only an environmental approach to explain depression and suggest the importance of mediational factors.

Hammen and Krantz (1975) gave depressed and non-depressed women bogus feedback on a task that was said to measure therapeutic potential. They found that following failure feedback depressed subjects' level of expectancy of future performance decreased significantly more than the non-depressed subjects' level of expectancy. Also they found that the depressed failure-feedback women evaluated themselves more negatively on characteristics for which bogus feedback had been given and for items not mentioned in the feedback process. In this same experiment the subjects were given an assessment instrument designed to measure the cognitive distortions mentioned by Beck (1967). They found that depressed women selected significantly more responses characterized as depressive-distorted.

In an experiment designed to examine the self-blaming tendencies found in depression, Rizley (1978) compared the causal attributions of depressed and non-depressed subjects after success or failure on a number-guessing task. It was found that the depressed subjects rated internal factors (ability and effort) as being more responsible for failure, but not for success, than did the non-depressed subjects. Rizley also compared depressed and non-depressed subjects' attributions in an interpersonal situation in which depressed subjects gave advice to a partner in a social perceptiveness task. The partner's performance either deteriorated or improved on the task without the subjects knowing

to what extent the partner had followed their advice. It was found that the depressed subjects rated themselves as having more interpersonal influence over the partner than did non-depressed subjects in both improving and deteriorating conditions. These results were interpreted as demonstrating the self-blaming tendency and the egocentric notion of causality associated with depression.

In addition to the research involving the interpretation of experience, another area of cognitive functioning that has been investigated is the recall of experience. The relevance of memory functioning in depression becomes apparent when one considers that the recall of the past not only affects the expectations regarding the future, but also the perception of the present environment (Heider, 1957).

Lishman (1972) measured the recall of material evaluated as pleasant and unpleasant in psychiatric inpatients. He found that after a two-week period the depressed subjects' "tendency to recall pleasant material over unpleasant material was less marked" than it was in non-depressed subjects.

Sternberg and Jarvik (1976) used three measures of memory to compare depressed inpatients and control inpatients on short-and long-term memory functioning. They found an impairment in short-term memory associated with depression on a word associates test, a recognition-of-figures test, and personal-data test. They also found that the greater improvement of the depressive state the greater the improvement in short-term memory. This impairment was not found in long-term memory. In contrast, Henry, Weingartner, and Murphy (1971) noted that depressives exhibited a significant impairment in long-term memory, but not short-term memory. They explained this impairment as a problem in transfer-

ring material from short-term to long-term memory.

Guza (1977) compared depressed and non-depressed college students' ability to recall positive, negative, and neutral audiotaped social interactions. He found that, overall, depressed subjects recalled significantly fewer interactions than non-depressed subjects.

Wener and Rehm (1976) examined subjects' ability to estimate prior feedback on a "pseudosocial intelligence task". Subjects were administered a word association task and given either 80% or 20% positive feedback. It was found that the more depressed subjects tended to underestimate the percentage of correct feedback they had received.

Mischel, Ebbesen, and Zeiss (1976) examined the effects of success and failure experiences and expectancies on the selective memory for positive versus negative personality information about the self. They found that when subjects expected to succeed they remembered less liability information then when they expected to fail. This difference in recalling negative self-relevant information was explained as a result of selective attention to negative information produced by the negative expectancies.

The renewed interest in cognitive processes and the subsequent research has produced accumulating evidence supporting a differential interpretation of experience in depression. There is also some evidence supporting a deficit in recall and a distortion in recall associated with depression.

The Learned Helplessness Model

"Learned helplessness" is a term first introduced by Seligman to describe a condition produced in animals that is analogous to reactive

depression. Seligman and Maier (1967) and Seligman and Overmeir (1967) initially produced this condition in dogs by subjecting the dogs to a series of inescapable shocks. Later the dogs were again placed in the experimental situation; however, this time they were given the opportunity to escape the shock by jumping over a barrier. The dogs that had experienced the series of inescapable shocks had greater difficulty in learning to escape the shock than did a group of naive dogs. In addition to the retarded rate of learning, there appeared symptoms similar to those found in depression such as weight loss, loss of libido, and norepinepherine depletion. Seligman called this condition "learned helplessness" and explained it as a result of the experience with uncontrollable trauma. Through this experience the dogs learned that responding and reinforcement are independent. Similar results have been obtained in experiments using fish, cats, rats, and humans (Behrend & Bitterman, 1963; Seward & Humphrey, 1967; Thornton & Jacobs, 1971; Weiss, Krieckhaus & Conte, 1968).

Maier (1970) demonstrated that learned helplessness was the learning of a cognitive set and not the result of learning a motor response (passivity reinforced by shock termination). He accomplished this by having one group of dogs learn to terminate shock by not responding and a yoked group experience the same shock, but independent of responding. Thus, one group learned to control the shock by passivity while the other group supposedly learned that the shock was uncontrollable. The two groups were then tested in a situation requiring them to jump over a barrier to escape shock. The dogs that had learned to control the shock passively learned to escape more readily than the yoked dogs that had experienced the uncontrollable shock. Thus, it was not the learning

of passive motor responses that interfered with escape, but rather it was the learning that responding is independent of escape.

Miller and Seligman (1973) tested the learned helplessness model with human subjects by measuring the expectancies of success for depressed and non-depressed subjects following reinforcement in chance and skill tasks. It was found that in the skill task, the expectancy change of depressed subjects was less than the expectancy change of non-depressed subjects following success. In the chance task both groups were affected the same by the experience. These results were interpreted as indicating that the depressed group experienced the reinforcement in both situations as being non-contingent on their performance. More specifically, for the depressed group the probability of reinforcement was perceived as being independent from the response. This response independence or learned helplessness has also been produced in human subjects experimentally.

Klein and Seligman (1976) pretreated a group of non-depressed subjects with inescapable noise. This group was then tested along with a depressed/no noise group and a non-depressed/no noise group for their ability to escape noise in a shuttle box. The depressed/no noise and the non-depressed/noise groups both demonstrated deficits in learning to escape, in comparison to the non-depressed/no noise group. These deficits were later eliminated by exposing the subjects to a series of solvable discrimination problems. Klein and Seligman (1976) reported a second experiment in which the expectancy change of depressed subjects was compared with that of non-depressed subjects who were pretreated with either escapable noise, or inescapable noise, or who received no pretreatment. They found that depressed subjects and non-depressed/

inescapable noise subjects demonstrated less expectancy change than the non-depressed/no noise subjects in a skill task. The similarity in performance of the depressed subjects and the non-depressed inescapable noise subjects was interpreted as indicating the perception of non-contingency as a prime factor in depression.

To find out whether learned helplessness was characteristic only of depression, Miller, Seligman, and Kurlander (1975) compared the expectancy change of depressed, non-depressed, and anxious subjects following success and failure on a line-discrimination task. They found that the depressed group had a smaller expectancy change after success than the non-depressed and anxious groups. No group differences were found in expectancy change after failure or in total expectancy change. The non-depressed group and the anxious group did not differ on any of the expectancy measures.

As a further test of the specificity of learned helplessness to depression, Abramson, Garber, Edwards, and Seligman (1978) compared the expectancy changes of unipolar depressives, depressed schizophrenics, non-depressed schizophrenics and non-depressed non-schizophrenics on a chance and skill task. The unipolar depressives demonstrated significantly less expectancy decrease following failure on the skill task in comparison to the other three groups. The unipolar depressives also demonstrated less expectancy change following success than the other three groups, but not at a significant level. No differences were found in expectancy change among the depressed schizophrenics, the non-depressed schizophrenics, and the non-depressed non-schizophrenic groups. These findings suggest that perceiving outcomes as response independent may be specific to depression.

Klein, Fencil-Morse, and Seligman (1976) treated groups of depressed and non-depressed subjects with solvable or insolvable discrimination problems followed by a series of anagrams. They found that prior experience with insolvable problems produced a deficit in anagram performance in both non-depressed and depressed subjects. In addition, they found that by telling subjects that their failures on the insolvable discrimination problem was normal and that only a very small percentage could succeed, the deficits depressed subjects typically demonstrated were eliminated. Thus, when failure could be attributed to external sources (task difficulty) depressed subjects performed in a way similar to non-depressed subjects.

Recently the learned helplessness model has been revised and has incorporated the concepts of attribution theory (Abramson, Seligman, & Teasdale, 1978). The reformulated model proposes that after people perceive a non-contingent relationship between their behavior and outcomes, they attribute their helplessness to a cause. The cause of the helplessness may be attributed to internal or external factors, stable or unstable factors, and global or specific factors. Depending on the attribution chosen, the individual will experience the helplessness as broad or narrow and chronic or acute. The attribution will also determine whether there is a loss of self-esteem associated with the helplessness.

In summary, the original learned helplessness model postulated that depression is caused by learning that responding is independent of outcomes. The depressed person is an individual who learns that he or she does not have control over his or her world. This approach may help to explain the high incidence of depression not only in individuals who experience uncontrolled trauma, but also in those who experience uncontrol-

lable positive reinforcement (i.e., beautiful women who are reinforced because of their looks and not because of their endeavors).

The reformulated model is consistent with the original learned helplessness model in that perceived non-contingency is the etiological factor in depression. Additionally, however, the new model emphasizes the attributional process which determines the characteristics of the helplessness.

The learned helplessness model has been criticized on the grounds that many of the findings supporting the model can be easily explained as a result of motivational deficits. The observed deficits may be produced by a loss of reinforcer effectiveness instead of a perceived non-contingency (Costello, 1978).

Additionally, the research supporting the learned helplessness model has been criticized for the use of expectancy change as a measure of perceived control. The use of this measure originated from Phares (1957) and James and Rotter (1958) who found that subjects change their expectancy ratings more in skill tasks than in chance tasks. This difference in expectancy change was interpreted as a function of the subject's perceived locus of control.

Recently, however, Frieze and Weiner (1971), Weiner, Cook, Heckhausen, and Meyer (1972), and Weiner, Neirenberg, and Goldstein (1974) have demonstrated that expectancy change is not a function of internal-external control as much as it is a function of the stable-unstable dimension of causal factors. Thus, typical expectancy changes occur when subjects explain outcomes by the stable causal factors of ability (internal-stable) and task difficulty (external-stable); and do not necessarily occur when subjects explain outcomes by the internal factors

of ability (internal-stable) and effort (internal-unstable). Moreover, subjects change their expectancies as a function of chronic or variable aspects of the situation and not as a function of their perceived control. If the findings of Frieze and Weiner (1971) and Weiner et al. (1972, 1974) are accurate, the possible confounding of the internal-external dimension with the stable-unstable dimension in the learned helplessness experiments makes the interpretation of their outcomes doubtful (Buchwald, Cole, and Coyne, 1978).

Statement of the Problem

The present study was designed to investiage further the relationship between depression and its accompanying cognitive disturbances. More specifically, this study examines the expectations, attributions, and recall of success and failure outcomes on an anagrams task by depressed and non-depressed subjects.

At the present time no single study has adequately examined both the causal attribution and the expectations of depressed subjects in regards to success and failure. In many experiments measure of expectancy and performance on achievement tasks have been the only measure of how depression affects the interpretation of outcomes. It seems likely that more information about cognition and depression can be obtained by using both expectancy measures and attributional measures.

Expectancies and Depression

As indicated in the review of the literature, Abramson et al. (1978), Klein and Seligman (1976), and Miller et al. (1973, 1975) have demonstrated that the depressed subject's level of expectancy following

success and failure in skill tasks changes less than the level of expectancy of non-depressed subjects following success and failure in skill tasks. This difference in expectancy change has been interpreted as being the result of the depressed person's perceived lack of control over the environment. Thus, following success and failure the depressed person's expectancy for future success is not affected since the outcomes are perceived as chance occurrences or as non-contingent on responding. This contingency according to the learned helplessness model exists for both positive and negative outcomes.

In contrast to the learned helplessness model, Beck's model of depression suggests that depressed people hold themselves responsible for failure outcomes but not responsible for successes. This differential responding has been indicated to some extent in previous studies where depressed subjects' level of expectancy has changed less than non-depressed subjects only after success but not after failure (Loeb et al., 1967, 1971; Miller et al., 1973, 1975). The differential change in expectancy following success and failure suggests that the depressed person may perceive him-or herself as controlling negative outcomes but not positive outcomes. If expectancy change is a measure of response-outcome dependency, then according to the learned helplessness model the depressed subjects should have less expectancy change than non-depressed subjects following both success and failure. In contrast, Beck's model of depression would predict an interaction between expectancy change and success and failure such that depressed subjects in comparison to non-depressed subjects would demonstrate less expectancy change only following success, and more expectancy change following failure.

Beck's model of depression also emphasizes a lowered level of ex-

pectancy brought about by a generalized negative perception of the self, the world, and the future. Based on this model and the findings of Loeb et al. (1964, 1967), it was hypothesized that the depressed group, in comparison to the non-depressed group, would have a lower level of expectancy both before and during the task. Also based on this model it was hypothesized that the depressed group, in comparison to the non-depressed group, would predict a lower level of performance on a future anagrams task.

Attribution and Depression

Recently Abramson and Sackeim (1977) reviewed the "paradoxical cognitions of uncontrollability and self-blame" found in depression. They point out that the traditional clinical description of depression involves both helplessness and self-blame. They also point out that for individuals to have these two attitudes concurrently is illogical. Depressed people would be blaming themselves for negative outcomes when they do not perceive themselves as controlling these negative outcomes. A possible solution to this paradox may be that depressed people perceive themselves as controlling negative outcomes but not positive outcomes. One purpose of the present study was to address this paradox using attribution measures to clarify how depressed people differ from non-depressed people in interpreting success and failure outcomes.

Weiner and Kukla (1970) have borrowed from the concepts of Heider (1958) and suggested the use of four attribution measures which can be aligned on the dimensions of internal-external and stable-unstable. The internal-external dimension identifies causal factors as being within the person or within the environment. They propose that this dimen-

sion is largely responsible for an individual's affective response to an outcome. The stable-unstable dimension identifies the causal factors as being chronic or variable. This dimension determines whether expectancy change will occur as the result of an outcome. Combining these dimensions they have produced the factors of ability (internal and stable), effort (internal and unstable), task difficulty (external and stable), and luck (external and unstable). These four factors have been used in research on attribution behavior and seem appropriate for research examining causal ascriptions in depression (Rizley, 1978). Thus in addition to using expectancy measures, the internal-external attributions were also used to measure the perception of responsibility for success and failure. Also the stable-unstable attribution was used to examine the relationship between the perceived stability of an outcome and expectancy change.

In general, attribution studies have indicated a trend for subjects to explain their success by the internal factors of ability and effort and to view the external factors of luck and task difficulty as being responsible for their failures (Luginbuhl, Crowe & Kahan, 1975; Streufert & Streufert, 1969; Wolosin, Sherman & Till, 1973; Wortman, Costanzo & Witt, 1973). This trend, however, has been shown to be reversed for low self-esteem subjects (Fitch, 1970; Marecek & Mettee, 1971; Silverman, 1964), and more recently for depressed subjects (Rizley, 1978).

Consistent with findings of the attribution research on low self-esteem and depression it was expected that <u>following success</u> the depressed group, in comparison to the non-depressed group, would make attributions more to external factors and less to internal factors. Thus, the depressed group should tend to externalize success in comparison to

the non-depressed group. Also, since previous research indicates that subjects in general tend to externalize failure it was expected that this would occur in the present study. Finally, it was predicted that the depressed group, in comparison to the non-depressed group, would make attributions more to internal factors, and less to external factors following failure. Thus, the depressed group, in comparison to the non-depressed group, would tend to internalize failure. No predictions were made regarding differences involving the factors of ability, effort, luck, task difficulty, and stability

Recall and Depression

As indicated previously another purpose of this study was to examine the memory deficits associated with depression. Both the phenomena of reduced recall and distorted recall in depression were investigated by having subjects recall the anagrams and the performance feedback that was given for each anagram. Consistent with the findings of Guza (1977), Henry et al. (1971), and Sternberg et al. (1976) it was hypothesized that depressed subjects in comparison to non-depressed subjects would recall fewer anagrams.

Also based on the findings of Lishman (1972), Mischel et al. (1976), Wener et al. (1976) it was hypothesized that the depressed subjects' recall of performance feedback on the anagrams would be distorted in a negative direction (underestimated) in comparison to the recall of non-depressed subjects.

CHAPTER II

METHODOLOGY

Subjects

The subjects were 20 male and 20 female undergraduates enrolled at Oklahoma State University. They participated in the experiment in return for extra points in an introductory psychology class. They were selected from a total sample of 186 male and 234 female students who were administered the Beck Depression Inventory. The original screening resulted in the total mean Beck Depression Inventory scores of 6.30 and 5.35 for males and females, respectively. Ten male subjects and 10 female subjects with scores of six or less were assigned to the non-depressed group. Ten male subjects and 10 female subjects with scores of 12 or more were assigned to the depressed group. The mean Beck Depression Inventory scores of the subjects for the initial testing and the retesting are presented in Table I. Nine students were eliminated from the experiment and replaced; six because of decreases in scores when retested with the Beck Depression Inventory sufficient to change group assignment, and three because of difficulty in following the experimental procedure.

Beck Depression Inventory

The Beck Depression Inventory (see Appendix A) is a multiple-choice questionnaire consisting of 21 categories. These categories are derived

from the symptoms and attitudes related to depression. There are four or five possible choices under each category which reflect the range of severity of the symptom. Numerical values of zero to three are assigned to each statement to indicate the degree of severity. The total score is arrived at by adding these values.

TABLE I

MEAN SUBJECT BECK DEPRESSION INVENTORY SCORES FOR INITIAL TESTING AND RETESTING

Group (N = 10)	Initial Score	Retest Score
Depressed		
Males	14.3	13.1
Females	19.5	17.6
Non-Depressed		
Males	3.0	2.0
Females	2.4	1.5

Beck (1967) and Metcalfe and Goldman (1965) report correlations ranging from .61 to .73 between scores on the depression inventory and clinical ratings for level of depression. According to Beck (1967) correlations with other measures of depression are as follows: Hamilton Rating Scales, using a Spearman Rank correlation coefficient, .75; Depression Adjective Check List, $\underline{r}$ = .40 to .66; the MMPI $\underline{D}$ scale, $\underline{r}$ = .75. Original norms were developed from a sample of 966 patients classified

under various nosological categories.

Guza (1977) administered the depression inventory to 200 male and 200 female undergraduates at Oklahoma State University. The males had a mean score of 6.9 with a standard deviation of 4.6. The females had a mean score of 7.1 with a standard deviation of 5.6.

Procedure

The Beck Depression Inventory was administered to classes of undergraduates following the procedures outlined by Beck (1967). The inventories were then collected and scored. Those subjects with scores of 6 or less and those with scores of 12 or more were contacted by telephone and asked if they wished to participate in the experiment for extra credit in their introductory psychology class. A brief description of the experimental task was given and times were arranged.

All subjects participated in the experiment within three days after being given the Beck Depression Inventory. Upon arrival at the experiment, subjects were seated in a room off from the experimental room and were again given the inventory. Six students were eliminated from the experiment since their retest scores had changed from the depressed level to the non-depressed level. Those subjects with appropriate retest scores were taken into the experimental room, seated, and then read instructions (see Appendix B) adapted from Feather and Saville (1967).

Subjects were then presented with the following series of 13 six-letter anagrams adapted from Feather (1969); AFILYM, RIDAYF, OCRSEU, MLOCNU, ONRPAD, ONESAD, THFREA, GERIDG, AVERLB, LENGUO, GERIDB, ERROPP, OMERND. The first three anagrams were identified as practice anagrams and used to familiarize the subjects with the task. They were not fol-

lowed by feedback. The subjects were then presented with a series of ten more anagrams. Each anagram was individually presented by means of a projector and slide. To insure that all subjects would be able to solve the anagrams a black dot was placed over the letter that was to be used as the first letter of the word and a green dot over the letter to be used as the last letter of the word. Prior to each of the 10 test anagrams the subject rated the probability of solving the anagram faster than 50% of the college population on an 11-point scale, with 0 being associated with being completely certain of a slower solution time than 50% of the college population, and 10 being associated with being completely certain of a faster solution time than 50% of the college population. Subjects were allowed the necessary time to solve each of the anagrams. The experimenter timed the subjects with a hand-held stop watch.

Subjects received feedback that indicated half of the trials as being faster than 50% or more of the college population (success) and half of the trials as being slower than 50% or more of the college population (failure). The sequence of feedback for the trials was randomly presented along with the order of the anagrams.

Feedback was given by means of two lights on a panel placed immediately in front of the subject. The lights were controlled by the experimenter and labeled with the following: "Failure - your solution time is slower than 50% or more of the population"; "Success - your solution time is faster than 50% or more of the population". After the feedback the subjects were asked to attribute their performance in percentages totaling 100% to the four factors of effort, ability, luck, and task difficulty.

After solving the 10 anagrams the subjects were asked to recall the words that were used in the anagrams task. Subjects were given a maximum of 10 minutes. The subjects were then given a list of the 10 words used as anagrams and asked to recall the feedback given on each of the words. The subjects were then asked to predict how many anagrams they could solve faster than 50% of the college population on a series of 10 more anagrams. All subjects were then questioned about the experiment to ascertain the effectiveness of the feedback and were then thoroughly debriefed.

Dependent Measures

The dependent variable used to measure expectancy change was that used in previous research, (Miller & Seligman, 1973) the total value of appropriate expectancy shifts minus the value of inappropriate expectancy shifts following feedback. This consisted of the total amount of increase following success minus the total amount of decrease; and following failure the total amount of decrease in expectancy minus the increase in expectancy. This variable was analyzed by a Depression x Sex x Feedback factorial analysis of variance with repeated measures of expectancy change over feedback conditions.

Three dependent variables were used to measure expectancy level; 1) the initial expectancy which was the expectancy rating following the three practice anagrams prior to the first test anagram and before any feedback, 2) the average level of expectancy which was the average of the expectancy ratings across the ten trials followed by feedback, and 3) the predicted success he or she would achieve on a series of 10 more anagrams.

Causal attributions were measured after each anagram on four scales in percentages totaling 100%, with no restriction as to the proportion of causality attributed to any one source. Following success feedback subjects attributed outcomes in percentages totaling 100% to ability, effort, good luck, and ease of task. Following failure feedback subjects made attribution to lack of ability, lack of effort, bad luck, and difficulty of task. These repeated and dependent measures of attribution following success and failure constituted four of the dependent variables in this study. Another variable called Int-Ext was the sum of the attributions made to internal factors (effort and ability) minus the sum of the attributions made to external factors (luck and task difficulty). A positive value indicates more internal attribution and a negative value indicates more external attribution. The final dependent measure related to attribution was that of Stable-Unstable. This variable was the sum of the stable attributions (ability and task difficulty) minus the sum of the unstable attributions (effort and luck). A positive value indicates an attribution to stable factors and a negative value indicates an attribution to unstable factors. These six dependent variables were analyzed by 2 x 2 x 2 analyses of variance, with 2 levels of depression, 2 levels of sex, and 2 levels of feedback.

One of the dependent variables used for investigating the effect of depression on recall was the number of anagrams correctly recalled. The other variable was the number of successes the subjects recalled. The first recall variable was analyzed by a 2 x 2 x 2 analysis of variance with depression, sex, and level of feedback as the factors. The distortion variable was analyzed by a 2 x 2 analysis of variance with depression and sex as the factors.

Experimental Questions and Hypotheses

1. Tests of the learned helplessness model and Beck's model of depression were made by comparing the amount of expectancy change of the depressed and non-depressed groups following success and failure. The learned helplessness model predicts less expectancy change for the depressed group following both success and failure (i.e., this model predicts a significant group effect). In contrast, Beck's model suggests that the depressed group should have less expectancy change following success and more expectancy change following failure than the non-depressed group (i.e., this model predicts a significant group x treatment interaction). The validity of these two models was tested by comparing the accuracy of their predictions regarding expectancy change.

2. It was hypothesized that the findings of Loeb et al. (1964, 1967, 1971) would be replicated: the depressed subjects would have a lower level of initial expectancy, lower average expectancy, and a lower level of predicted performance.

3. (a) Consistent with the findings of Fitch (1970), Merecek and Mettee (1971), Rizley (1978), and Silverman (1964), it was hypothesized that following success the non-depressed group would make more attribution to internal sources than the depressed group. Thus, following success the value of Int-Ext would be greater for the non-depressed group in comparison to the depressed group. Also, following failure the depressed group would make more attributions to internal sources than the non-depressed group. Thus, following failure the value of the Int-Ext would be greater for the depressed group than the non-depressed group. (b) Based on the findings of Luginbuhl, Crowe, and Kahan (1975); Wolosin, Sherman, and Till (1973); and Wortman, Costanzo, and Witt

(1973) it was predicted that following failure both groups would make attributions to external sources more than to internal sources. In other words, the value of Int-Ext following failure would be less than the value of Int-Ext following success. (c) Finally, no predictions were made regarding the factors of ability, effort, luck, task difficulty, and stable-unstable.

4. In recalling the anagrams it was hypothesized that (a) the depressed group would recall fewer anagrams than the non-depressed group (Guza, 1977; Henry et al., 1971; Sternberg et al., 1976), and (b) the depressed group would distort the recall of success feedback in a negative direction relative to the non-depressed group. Thus, the depressed group would recall fewer instances of success.

CHAPTER III

RESULTS

Actual Performance Times

To determine whether there were any significant performance differences between the depressed and non-depressed groups, two analyses were conducted. The first analysis employed a 2 x 2 randomized design to compare the depressed and non-depressed groups' total solution times for the first three practice anagrams prior to any feedback. The results of the analysis of variance used to make this comparison of mean total solution times is presented in Table II. No significant main effects or interaction effects were found.

The second analysis of performance time for the depressed and non-depressed groups involved a comparison of the mean total solution times for the ten anagrams that were followed by feedback. The results of this analysis are presented in Table III. Again no signficant differences were found between the performance of the two groups.

Expectancy Ratings

The means for the measure of expectancy change following success and failure feedback are presented in Table IV. An analysis of variance comparing the amount of expectancy change following success and failure for the depressed and non-depressed groups did not indicate any significant group differences. Thus the hypothesis, based on the

TABLE II

ANALYSIS OF VARIANCE OF THE EFFECTS OF DEPRESSION AND SEX ON THE TOTAL SOLUTION TIMES OF 3 PRACTICE ANAGRAMS PRIOR TO FEEDBACK
2 X 2

Source	SS	df	MS	F
A (Depression)	3515.625	1	3515.625	0.84
B (Sex)	1677.025	1	1677.025	0.40
AB	207.025	1	207.025	0.05
Within Subjects	150826.100	36	4189.614	

TABLE III

ANALYSIS OF VARIANCE OF THE EFFECTS OF DEPRESSION AND SEX ON THE TOTAL SOLUTION TIMES OF 10 ANAGRAMS FOLLOWED BY FEEDBACK
2 X 2

Source	SS	df	MS	F
A (Depression)	16081.1	1	16081.1	0.41
B (Sex)	23716.9	1	32716.9	0.61
AB	4579.6	1	4579.6	0.12
Within Subjects	1406801.0	36	39077.8	

learned helplessness model, that the depressed group would have smaller levels of expectancy change following success and failure was not substantiated. Also, this analysis did not indicate a significant interaction. Thus, the hypothesis based on Beck's model that the depressed group, in comparison to the non-depressed group, would have less expectancy change following success and more expectancy change following failure was also not supported. The results of the analysis of variance used to investigate these hypotheses are presented in Table V.

TABLE IV

MEAN RATINGS OF EXPECTANCY AS A FUNCTION OF DEPRESSION AND SUCCESS-FAILURE FEEDBACK

Dependent Measure	Group			
	Depressed		Non-Depressed	
	Success	Failure	Success	Failure
Expectancy change	1.95	1.65	2.25	1.85

Table VI contains the means of the initial expectancies, the means of the average expectancy across trials, and the means of the number of predicted successes. The results of the analysis of variance conducted on the level of initial expectancy (expectancy following the three practice anagrams prior to any feedback) are presented in Table VII. This analysis was conducted to investigate the hypothesis stemming from Beck's model which predicts a lower level of expectancy for depressed subjects. This analysis did not indicate a significant main effect for

TABLE V

ANALYSIS OF VARIANCE OF THE EFFECTS OF DEPRESSION, SEX AND SUCCESS AND FAILURE FEEDBACK ON EXPECTANCY CHANGE 2 X 2 X 2

Source	SS	df	MS	F
A (Depression)	1.25	1	1.25	0.13
C (Sex)	2.45	1	2.45	0.25
AC	0.45	1	0.45	0.05
Subjects w. Group Error	356.40	36	9.9	
B (Feedback)	2.45	1	2.45	2.53
AB	0.05	1	0.05	0.05
BC	1.25	1	1.25	1.29
ABC	0.45	1	0.45	0.47
B X Subjects w. Group Error	34.80	36	0.97	

TABLE VI

MEAN RATINGS OF EXPECTANCY AS A FUNCTION OF DEPRESSION AND SEX

Dependent Measure	Group			
	Depressed		Non-Depressed	
	Male	Female	Male	Female
Initial expectancy	5.5	3.9	5.9	4.6
Expectancy across trials	5.5	3.9	6.2	4.7
Number of successes predicted	5.2	4.5	6.2	4.6

TABLE VII

ANALYSIS OF VARIANCE OF THE EFFECTS OF DEPRESSION AND SEX ON INITIAL EXPECTANCIES 2 X 2

Source	SS	df	MS	F
A (Depression)	3.025	1	3.025	1.46
B (Sex)	21.025	1	21.025	10.13*
AB	0.225	1	0.225	0.74
Within Subjects	74.70	36	2.08	

*$p < .005$

depression; however, it did indicate a significant main effect for sex such that the male subjects in comparison to the female subjects had a higher level of initial expectancy, F (1,36) = 10.13, $p < .003$. A planned t-test used to further compare the depressed and non-depressed group's initial expectancy was not statistically significant; however, there was a tendency for the depressed group to have a lower level of initial expectancy (M = 4.7) in comparison to the non-depressed group (M = 5.26), $t(36) = 1.21$, $p < .12$.

An analysis of variance was conducted on the average level of expectancy across the ten trials to further test the hypothesis of a lower level of expectancy associated with depression. The results of this analysis are presented in Table VIII. Consistent with the predictions based on Beck's model, the depressed subjects in comparison to non-depressed subjects demonstrated a significantly lower average expectancy across trials $F(1,36) = 4.21$, $p < .05$. This analysis also indicated a highly significant main effect for sex such that the male subjects, in

comparison to the female subjects, had higher average expectancy ratings $F(1,36) = 17.18$, $p < .001$.

TABLE VIII

ANALYSIS OF VARIANCE OF THE EFFECTS OF DEPRESSION AND SEX ON AVERAGE EXPECTANCIES

2 X 2

Source	SS	df	MS	F
A (Depression)	5.852	1	5.852	4.21*
B (Sex)	23.870	1	23.870	17.18**
AB	0.072	1	0.072	0.05
Within Subjects	50.033	36	1.390	

*$p < .05$
**$p < .001$

The results of the analysis of variance for the level of predicted success on a series of ten more anagrams are presented in Table IX. This analysis was employed as an additional test of the hypothesized negative conception of the future associated with depression. The analysis of variance did not indicate a significant main effect for depression. There was however, a significant main effect for sex such that the predictions for future performance were higher for males than females, $F(1,36) = 9.5$, $p < .004$. A planned t-test used to further compare the depressed and non-depressed subjects estimates of future performance did not reach statistical significance. However, there was a tendency for the non-depressed subjects to make higher estimates of their performance on a future anagrams task, $t(36) = 1.47$, $p < .10$.

TABLE IX

ANALYSIS OF VARIANCE OF THE EFFECTS OF DEPRESSION AND SEX ON THE PREDICTIONS OF SUCCESS 2 X 2

Source	SS	df	MS	F
A (Depression)	12.10	1	12.10	2.17
B (Sex)	52.90	1	52.90	9.50*
AB	8.10	1	8.10	1.46
Within Subjects	200.40	36	5.57	1.46

*$p < .005$

Attribution Measures

The mean ratings for the causal ascription of ability (or lack of), effort (or lack of), luck (good or bad), and task (ease of or difficulty of), are presented in Table X. Also in this table are the means of the variables used to measure internal attribution and perceived stability. Large positive values indicate a greater degree of attribution, a greater degree of internality, and a greater degree of perceived stability.

Univariate analyses of variance consisting of two levels of depression, two levels of sex and two levels of feedback were used to analyze each of these variables. The results of these analyses for the attribution ratings to ability, effort, luck and task are presented in Appendix C. These analyses did not indicate any statistically significant main or interaction effects.

The results of the analysis of variance performed on the measure of causal attribution to internal factors (Int-Ext) is presented in Table XI. This analysis did not indicate any significant main effects;

TABLE X

MEAN ATTRIBUTIONS OF DEPRESSED AND NON-DEPRESSED SUBJECTS AS A FUNCTION OF SUCCESS AND FAILURE

Group	Dependent Measure					
	Ability	Effort	Luck	Task	Int-Ext	Stable-Unstable
Depressed						
Success	31.55	32.15	12.80	23.75	27.63	10.50
Failure	36.55	23.00	16.80	22.65	21.25	20.40
Non-Depressed						
Success	35.75	35.75	24.85	16.20	21.20	17.20
Failure	28.20	25.30	20.40	25.90	10.00	7.45

Note: Higher values indicate greater causal attributions.

TABLE XI

ANALYSIS OF VARIANCE OF THE EFFECTS OF DEPRESSION, SEX AND SUCCESS-FAILURE FEEDBACK ON THE ATTRIBUTION RATINGS TO INTERNAL AND EXTERNAL CAUSAL FACTORS 2 X 2 X 2

Source	SS	df	MS	F
A (Depression)	1566.45	1	1566.45	0.78
C (Sex)	4992.80	1	4992.80	2.49
AC	320.00	1	320.00	0.16
Subjects w. Group Error	72169.70	36	2004.71	
B (Feedback)	1548.80	1	1548.80	1.44
AB	115.20	1	115.20	0.11
BC	3781.25	1	3781.25	3.52
ABC	551.25	1	551.25	0.51
B X subjects w. Group Error	38690.50	36	1074.74	

however, the sex x treatment interaction was marginally significant indicating that female subjects tended to internalize failure more than males $F(1,36) = 3.52$, $p < .07$. Since specific predictions had been made regarding the variable Int-Ext, t-tests were performed comparing the depressed and non-depressed groups Int-Ext causal attributions for success and failure. In the success conditions the groups did not differ significantly. In the failure conditions there was only a tendency for the depressed group to make ratings in a more internal direction than the non-depressed group $t(36) = 1.04$, $p < .16$. Thus, the hypothesis that the depressed group, in comparison to the non-depressed group, would tend to externalize success and internalize failure was not substantiated.

The Int-Ext measure was also used to test the hypothesis that subjects overall would give higher ratings to internal factors in the success condition than in the failure condition. A planned t-test was used to compare the mean ratings of the Int-Ext causal attributions following success ($M = 24.4$) and failure ($M = 15.6$). The results of this test were not statistically significant; however, the means were in the predicted direction, $t(36) = 1.21$, $p < .15$.

The results of the analysis of variance for the ratings on the stability dimension are presented in Table XII. This analysis did not indicate any significant main effects, or interaction effects.

Recall Measures

It was hypothesized that the depressed groups would recall fewer anagrams than the non-depressed group. The results of the analysis of variance on the number of anagrams recalled did not support this hypothesis. These results are presented in Table XIII. This analysis did

TABLE XII

ANALYSIS OF VARIANCE OF THE EFFECTS OF DEPRESSION, SEX AND SUCCESS-FAILURE FEEDBACK ON THE ATTRIBUTION RATINGS FOR STABILITY
2 X 2 X 2

Source	SS	df	MS	F
A (Depression)	195.31	1	195.31	0.22
C (Sex)	1178.11	1	1178.11	1.31
AC	9.11	1	9.11	0.01
Subjects w. Groups Error	32479.95	36	902.22	
B (Feedback)	0.11	1	0.11	0.00
AB	1930.61	1	1930.61	1.80
BC	189.11	1	189.11	0.18
ABC	1304.11	1	1304.11	1.22
B X Subjects w. Groups Error	38517.55	36	1069.93	

TABLE XIII

ANALYSIS OF VARIANCE OF THE EFFECTS OF DEPRESSION, SEX AND SUCCESS-FAILURE FEEDBACK ON THE RECALL OF SOLVED ANAGRAMS
2 X 2 X 2

Source	SS	df	MS	F
A (Depression)	1.01	1	1.01	1.08
C (Sex)	0.31	1	0.31	0.33
AC	0.01	1	0.01	0.01
Subjects w. Group Error	33.65	36	0.94	
B (Feedback)	7.81	1	7.81	7.67*
AB	1.51	1	1.51	1.49
BC	1.51	1	1.51	1.49
ABC	1.01	1	1.01	0.99
B X Subjects w. Group Error	36.65	36	1.01	

*$p < .01$

indicate a significant main effect for feedback such that there was a significantly greater number of failure feedback anagrams recalled in comparison to success feedback anagrams $F(1,36) = 7.67$, $p < .009$. A planned t-test was instituted to examine further the number of recalled anagrams of the depressed and non-depressed subjects. This analysis was also not significant. In fact, the mean number of anagrams recalled by the depressed subjects ($M = 4.75$), was slightly higher, although not significantly higher, than the number recalled by the non-depressed subjects ($M = 4.30$). Thus, the recall deficit supposedly associated with depression was clearly not demonstrated.

The results of the analysis of variance for the recall of success performance feedback is presented in Table XIV. This analysis did not indicate any significant main or interaction effects. A planned t-test was also conducted to test further the hypothesis of distorted recall of feedback associated with depression. A comparison of the mean number of successes recalled by the depressed and non-depressed was not significant, with means of 5.05 and 5.25, respectively. Thus, the hypothesis that the depressed groups, when recalling the feedback, would report less success feedback then the non-depressed group was not substantiated.

TABLE XIV

ANALYSIS OF VARIANCE OF THE EFFECTS OF DEPRESSION AND SEX ON THE RECALL OF SUCCESS FEEDBACK 2 X 2

Source	SS	df	MS	F
A (Depression)	0.40	1	0.40	0.43
B (Sex)	2.50	1	2.50	2.66
AB	0.43	1	0.43	0.43
Within Subjects	33.80	36	0.94	

CHAPTER IV

DISCUSSION

The hypothesis from the original learned helplessness model of depression that depressed subjects in comparison to non-depressed subjects would demonstrate less expectancy change, was not supported in this experiment. According to the learned helplessness model the smaller amount of expectancy change shown by depressed subjects in previous studies (Abramson et al., 1978; Klein & Seligman, 1976; Miller & Seligman, 1973, 1976; Miller et al., 1975) is the result of the depressed subjects' belief in a non-contingent relationship between their responses and outcomes.

A somewhat different hypothesis regarding expectancy change was derived from Beck's model of depression. This hypothesis stated that if expectancy change is a measure of perceived control then there should be an interaction between depression and outcomes, such that the depressed subjects, in comparison to non-depressed subjects, would show less expectancy change following success and more expectancy change following failure. This pattern would be produced by the depressive's tendency to consider him/herself as not responsible for success but responsible for failure. This hypothesized interaction did not occur in this experiment. Instead, both the depressed and non-depressed groups demonstrated approximately the same increments in expectancy following success and the same decrements in expectancy following failure.

It is unlikely that both models are entirely inaccurate. It may be that the lack of group differences in expectancy change in the present study was due to the subject's perceiving the task as being one of chance rather than skill. If this were the case both groups would be expected to have similar levels of expectancy change. It is unlikely, however, that this occurred since subjects were told in the instructions that the task related to verbal and problem-solving ability. In addition, if the subjects perceived the task as one of chance one would expect the attributions to luck to be considerably higher than they were. A more likely explanation for the lack of differences between the two groups on the measure of expectancy change is that expectancy change is not an appropriate measure of perceived control (Costello, 1978; Rizley, 1978; Weiner et al., 1971, 1975). It may be that, as Weiner has suggested, expectancy change is not a function of the internal-external causal dimension as much as it is a function of the stable-unstable causal dimension. If this is the case it may help explain why several recent studies in addition to the present one have been unable to find significant differences in expectancy change as a function of depression (Hollon, 1977; McNitt & Thornton, 1978; O'Leary, Donovan, Krueger, Cysewski, 1978; Roth & Bootzin, 1974; Sacco & Hokanson, 1978; Smolen, 1978; Willis & Blaney, 1978).

Another hypothesis related to Beck's model of depression was that depressed subjects would have lower levels of expectancy than non-depressed subjects. The measures of initial expectancy, average expectancy, and predicted performance were used to test this hypothesis. The average level of expectancy following success and failure clearly differentiated the two groups, giving support to the hypothesis. The measures of

initial expectancy and predicted performance approached significant levels, lending further support to the hypothesis. In general then, the hypothesis that pessimism is associated with depression was supported. This lower level of expectancy occurred even though both groups received the same level of success feedback. In addition, there were no differences between the groups in time needed to solve the anagrams; thus, the lower expectancy of the depressed group was not based on any actual performance deficit. This is consistent with the earlier findings of Loeb et al. (1967, 1971). Beck (1976) explains the depressive's negative expectations as a result of a process of "screening out" positive experiences. An alternative explanation may be that the lowering of expectations is an adaptive function, serving to prevent further disappointment and loss. It has been suggested that depression-prone individuals have unrealistic standards and goals, and that depression sometimes results from not meeting these expectations (Bandura, 1969; Beck, 1976, Cysewski, 1975; Schwarz, 1974). It may be that after failing to meet these unrealistic expectations the depressed person reacts by lowering his or her expectations, thereby avoiding further disappointment and further loss of self-esteem.

Another finding involving the measures of expectancy was that of a difference in expectancy level for males and females. Consistently across the three measures--initial expectancy, average expectancy, and predicted performance--the female subjects rated their probabilities of success and their predicted performance lower than male subjects. As in the case of the depressed subjects this lower level of expectancy for female subjects was not based on any actual performance deficit. This difference in expectancy between sexes is consistant with the findings

of previous research (Crandall, 1969; Deaux, White & Farris, 1975; Feather, 1969). These findings may indicate that females view themselves as generally less competent on tasks of skill. These findings might also be the result of the socialization process in our culture which has traditionally encouraged passivity and modesty in females. In a setting where expectations are expressed publicly as in this experiment, females may tend to express less confidence as a function of what is socially acceptable. In more private setting this difference may not occur. Obviously, statements about the accuracy of either explanation in accounting for the observed sex differences depend on further research.

The measures of causal attribution to the factors of ability, effort, luck and task were not significantly different for the depressed and non-depressed groups. In the study by Rizley (1978) there was a significant interaction between depression and outcomes on the measure of ability such that depressed subjects, in comparison to non-depressed subjects, rated ability as a less important causal factor for success, but not for failure. Although in the present experiment this interaction did not occur at a statistically significant level, the means were in a direction consistent with the earlier study.

The attribution measure, internal-external was formed by subtracting the sum of the two external causal sources (luck and task) from the two internal causal sources (ability and effort). This measure was used as an indication of the extent to which the subjects perceived themselves in control of and responsible for the outcomes of success and failure (Weiner et al., 1971). Beck's model of depression predicts a differential attribution on the variable internal-external for success and failure, such that depressed people, in comparison to non-depressed people,

would tend to externalize success and internalize failure. Although the means were in the predicted directions following failure, they were not significantly different; overall this prediction was not supported by the findings of this experiment. In contrast, the experiment by Rizley (1978) demonstrated that depressed subjects, in comparison to non-depressed subjects, rated internal causal factors as more important determinants of failure but not of success. The inconsistent results of the present study with the previous study may be accounted for by the methodological differences in the two experiments. In the study by Rizley (1978) the subjects made attribution ratings after completing the entire task, which was then judged either a success or a failure. In the present study the subjects made repeated ratings throughout the task and may have been uncertain about the factors producing outcomes until the later trials. In retrospect it would have been interesting to obtain an additional attribution rating regarding the subject's overall performance at the end of the ten trials.

The characteristics of the subject population used in the two experiments is another important factor that may have produced the inconsistent results on the internal-external variable. It may be that depressed individuals with chronic low self-esteem are self-blaming. However, not all depressed people have low self-esteem, nor are all individuals with low self-esteem depressed (Zung, 1972). It may be possible to have mildly depressed subjects with normal levels of self-esteem who are not self-blaming. In turn it may be that in a non-depressed group there are subjects with low self-esteem who are self-blaming. The lack of a high correlation between self-esteem and depression may reduce group differences in attribution processes. It is interesting that in

the study by Fitch (1970) subjects characterized as having low self-esteem, as measured by the Tennessee Self-Concept Scale (Fitts, 1964), demonstrated an attributional process similar to the depressed subjects in the study by Rizley (1978). Both the low self-esteem group and the depressed group attributed significantly more causality to internal sources following failure than did the comparison groups, a high self-esteem group and a non-depressed group, respectively. It seems unlikely that the subjects in the Fitch study were also depressed since the selection process was based on a median split of subjects' scores, and it is unlikely that in any random sample half of the subjects would be depressed. It may be then, that self-esteem and not depression is the variable that affects the extent to which a person internalizes failure outcomes.

The variability of this self-blaming tendency in depression has recently been hypothesized by Abramson et al. (1978). He points out that people may experience helplessness as being universal or personal. In either situation the person is depressed; however, in the case of universal helplessness the individual is not self-blaming and does not suffer from a loss of self-esteem. In contrast, in the situation of personal helplessness the individual is self-blaming and experiences a loss of self-esteem. In future studies dealing with attributional processes and depression, it is essential that a clear distinction be made regarding these possible subtypes of helplessness.

Another hypothesis related to the internal-external variable was that subjects in general would tend to internalize success more than failure. Although this hypothesis was not supported at a significant level, the means were in the predicted direction. In part this hypothe-

sis was not substantiated because of the differences in the attributions of male and female subjects. Interestingly, the male subjects demonstrated a tendency to internalize success and externalize failure, while females internalized both success and failure. Thus, the male subjects in this experiment demonstrated the self-serving bias which supposedly serves to protect self-esteem (Miller & Ross, 1975).

The difference between the male and female subjects' internalization of failure is especially interesting considering that women are from 2 to 10 times more likely than men to experience a depression (Radloff, 1975). It is possible that this difference in the frequency of depression for the sexes may be due to the differences in their attributional patterns. Weiner et al. (1971) suggest that an individual's affective response to an outcome is generally determined by the locus of control. If this is so, women in general may be more negatively affected by failure then men, since they may see themselves as the cause of their failures more often then men. Whether this pattern of attribution is task dependent or a more general phenomenon would be an important area of future research.

On the measure of stability, which was the sum of the unstable factors, effort and luck, subtracted from the sum of the stable factors, ability and task difficulty, no significant differences were found between the depressed and non-depressed groups. Frieze and Weiner (1971) and Weiner et al. (1972, 1974) have demonstrated that attributions to the causal sources involving the stable-unstable dimension are more important in determining expectancy shifts than are attributions to the causal sources involving the dimension of control. If this is so, one would have expected group differences on this measure if there had been

group differences on the measure of expectancy change. No significant group differences were found on this variable.

Previous research has demonstrated a relationship between memory deficits and depression (Guza, 1977; Henry et al., 1971; Lishman, 1972; Sternberg & Jarvick, 1976). Inconsistent with these findings, the present study found no difference between the depressed and non-depressed subjects recall of the anagrams. A relatively low number of anagrams was recalled by both groups (less than half). It seems likely that interference produced by the experimental tasks of solving the anagrams, and rating attributions and then expectancies, after exposure to the anagrams may account for the low number of anagrams recalled.

Payne and Hewlett (1960) suggested that many of the deficits found in depression are produced because depressed people are distracted by their depressive thoughts and worries. This may explain why in previous studies depressed individuals have demonstrated memory deficits. They simply may not attend to the material or rehearse it to the extent that non-depressed individuals do. In order to solve anagrams in the present study a moderate level of attention and concentration was required. Since both groups performed at approximately the same level in solving the anagrams, it can be assumed that both groups were attending at approximately the same level. If attention is the important variable then no dificit should have resulted. Additionally, the tasks of rating attributions adding to 100% and rating expectancies may have served to distract the depressed subjects from their depressive thoughts. At the same time the experimental task may have interfered with the non-depressed subjects' rehearsal of the anagrams. Future research could adequately test whether memory deficits in depression are a function of

attention by varying the content of the material, the manner of presentation, and the conditions under which the material is presented, i.e., with or without interference.

An unexpected finding was that subjects overall recalled more failure anagrams than success anagrams. This finding is inconsistent with that of Lishman (1972) who found that material with pleasurable connotations was recalled better than material with negative connotations. The better recall of failures in the present experiment may be the result of more attention being directed to the failure anagrams because of concern, puzzlement, and/or anxiety.

The final hypothesis, based on the findings of Wener and Rehm (1976), was that the depressed group would recall receiving less success feedback than the non-depressed group. This hypothesis was not substantiated by the results of this experiment. The difference in outcomes of the Wener and Rehm (1976) study and the present study may be explained by the methodological differences in the studies. In the former study depressed subjects "estimated" their level of success feedback. In the present study subjects were given the list of anagrams and asked to "recall" the feedback they had received on each anagram. It may well be that when depressed subjects report general impressions of past outcomes, they may negatively distort these outcomes. However, when they actually recall these outcomes by associating them with specific instances, this distortion does not occur. The absence of distortion when specific instances are presented may have implications for the treatment of depression. It may be beneficial for the depressed person to focus on specific instances in the past rather then dealing with the past in an impressionistic manner. This focusing may help to bring about a change in the

depressed individual's perception of the past and possibly a change in his or her expectations for the future.

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APPENDIXES

APPENDIX A

BECK DEPRESSION INVENTORY

Name:_____ Phone:_____
Date:_____

CHOOSE ONE STATEMENT UNDER EACH LETTER THAT BEST DESCRIBES YOU FOR THE LAST SEVEN DAYS. CIRCLE THE NUMBER TO THE LEFT OF THE STATEMENT YOU HAVE CHOSEN.

A. 0 I do not feel sad.
1 I feel sad.
2 I am sad all the time and I can't snap out of it.
3 I am so sad or unhappy that I can't stand it.

B. 0 I am not particularly discouraged about the future.
1 I feel discouraged about the future.
2 I feel I have nothing to look forward to.
3 I feel that the future is hopeless and that things cannot improve.

C. 0 I do not feel like a failure.
1 I feel I have failed more than the average person.
2 As I look back on my life, all I can see is a lot of failure.
3 I feel I am a complete failure as a person.

D. 0 I get as much satisfaction out of things as I used to.
1 I don't enjoy things the way I used to.
2 I don't get real satisfaction out of anything anymore.
3 I am dissatisfied or bored with everything.

E. 0 I don't feel particularly guilty.
1 I feel guilty a good part of the time.
2 I feel quite guilty most of the time.
3 I feel guilty all of the time.

F. 0 I don't feel I am being punished.
1 I feel I may be punished.
2 I expect to be punished.
3 I feel I am being punished.

G. 0 I don't feel disappointed in myself.
1 I am disappointed in myself.
2 I am disgusted with myself.
3 I hate myself.

H. 0 I don't feel I am any worse than anybody else.
1 I am critical of myself for my weaknesses or mistakes.
2 I do blame myself all the time for my faults.
3 I blame myself for everything bad that happens.

I. 0 I don't have any thoughts of killing myself.
1 I have thoughts of killing myself, but I would not carry them out.
2 I would like to kill myself.
3 I would kill myself if I had the chance.

J. 0 I don't cry anymore than usual.
1 I cry more now than I used to.
2 I cry all the time now.
3 I used to be able to cry, but now I can't cry even though I want to.

K. 0 I am no more irritated now than I ever am.
1 I get annoyed or irritated more easily than I used to
2 I feel irritated all the time now.
3 I don't get irritated at all by the things that used to irritate me.

L. 0 I have not lost interest in other people.
1 I am less interested in other people than I used to be.
2 I have lost more of my interest in other people.
3 I have lost all of my interest in other people.

M. 0 I make decisions about as well as I ever could.
1 I put off making decisions more than I used to.
2 I have greater difficulty in making decisions than before.
3 I can't make decisions at all anymore.

N. 0 I don't feel I look any worse than I used to.
1 I am worried that I am looking old or unattractive.
2 I feel that there are permanent changes in my appearance that make me look unattractive.
3 I believe that I look ugly.

O. 0 I can work about as well as before.
1 It takes an extra effort to get started at doing something.
2 I have to push myself very hard to do anything.
3 I can't do any work at all.

P. 0 I can sleep as well as usual.
1 I don't sleep as well as I used to.
2 I wake up 1-2 hours earlier than usual and find it hard to get back to sleep.
3 I wake up several hours earlier than I used to and cannot get back to sleep.

Q. 0 I don't get more tired than usual.
1 I get tired more easily than I used to.
2 I get tired from doing almost anything.
3 I am too tired to do anything.

R. 0 My appetite is no worse than usual.
1 My appetite is not as good as it used to be.
2 My appetite is much worse now.
4 I have no appetite at all any more.

S. 0 I haven't lost much weight, if any, lately.
1 I have lost more than 5 pounds.
2 I have lost more than 10 pounds.
2 I have lost more than 15 pounds.
I am purposely trying to lose weight by eating less: Yes__ No__

T. 0 I am no more worried about my health than usual.
1 I am worried about physical problems such as aches and pains; or upset stomach, or constipation.
2 I am worried about physical problems and it's hard to think of much else.
3 I am so worried about my physical problems, that I cannot think about anything else.

U. 0 I have not noticed any recent change in my interest in sex.
1 I am less interested in sex than I used to be.
2 I am much less interested in sex now.
3 I have lost interest in sex completely.

APPENDIX B

INSTRUCTIONS

In this experiment I am interested in finding out how well you can predict and monitor your performance on a task that is related to verbal ability and problem solving ability. You will be shown a series of slides of anagrams. Anagrams are letters of the alphabet that are disarranged that can be rearranged to make a word. Your task will be to rearrange each group of letters projected on the wall in front of you, so that they make a meaningful English word. For example, the letters t-c-a can be arranged c-a-t to form the word cat. The anagrams you will be working with will contain six letters that can be arranged to form a common English word. On each of the anagrams there is a black dot under the letter which is to be used as the first letter of the word, and a green dot under the letter which is to be used as the last letter of the word. Please try to do your best and work as quickly as you can in solving each anagram as your solution time will be taken as a fairly accurate indication of your verbal and problem solving ability in comparison to the college population. You will be given as much time as necessary to solve each anagram and you are to continue to work until you reach the solution. The anagrams are of varying difficulty, thus some will take you longer than others. After you have solved the anagram say the word and I will stop timing. You will then be given feedback based on how fast you have solved the anagram, in comparison to the rest of the college population. You will receive the feedback by means of the lights in front of you. Each light is labeled and will come on for three seconds to let you know how well you have done. The red light indicates that your response time was slower than 50% or more of the college population, and the green light indicates that your response time was faster than 50% or more of the college population. After the light goes off I

want you to explain your performance by indicating to what extent you think the factors of ability, effort, luck and task difficulty affected your performance. I want you to indicate this by circling the appropriate percentage points on the four scales on the sheets next to the red or green light. If your performance was faster than 50% or more of the college population use the sheets with the heading "success" next to the green light. If your performance was slower than 50% or more of the college population use the sheets with the heading "failure" next to the red light. In explaining your performance mark the four scales so that the total percentage of the four scales equals 100%. You may use any proportion of the four scales to explain your performance, but make sure the total from the four scales equals 100%. Keep in mind that your response time for each anagram is compared to the average response time of the college population for that particular anagram. Also it is reasonable to assume that variability in your performance may be produced by the factors of ability, effort, luck, or task difficulty. Finally, before each slide is shown I want you to estimate how certain you are that you can solve the next anagram in a time that is faster than 50% or more of the college population. You are to estimate your degree of certainty of success by marking the scales in the booklet in front of you. You may use any number on the scale from 0 to 10. If you feel completely certain that your solution time will be faster than 50% or more of the population, you may rate yourself with a high number such as a 9 or a 10. If you feel moderately sure that your time will be faster or slower than 50% of the population, you may rate your degree of certainty with a number nearer the center of the scale. If you feel completely certain that your time will be slower than 50% of the population, rate your degree of

certainty with a lower number, such as 0. It is important that you select your estimates carefully and that they correspond closely with how certain you really are. They should be an accurate description of the degree to which you really feel that you will or will not be able to solve the anagram faster than 50% of the college population.

Before we begin with the actual testing you will be given 3 practice anagrams without receiving any feedback or filling out any of the forms. After you have solved the third practice anagram mark in the booklet how well you expect to do on the first test anagram. If you have any questions at any time please feel free to ask.

APPENDIX C

ANALYSIS OF VARIANCE TABLES FOR THE ATTRIBUTION RATINGS TO THE CAUSAL FACTORS OF ABILITY, EFFORT, LUCK, AND TASK DIFFICULTY

TABLE XV

ANALYSIS OF VARIANCE OF THE EFFECTS OF DEPRESSION, SEX AND SUCCESS-FAILURE FEEDBACK ON ATTRIBUTION RATINGS TO ABILITY
2 X 2 X 2

Source	SS	df	MS	F
A (Depression)	132.61	1	132.61	0.54
C)Sex)	82.01	1	82.01	0.33
AC	56.11	1	56.11	1.23
Subjects w. Group Error	8868.25	36	246.34	
B (Feedback)	12.01	1	12.01	0.04
AB	918.01	1	918.01	2.79
BC	148.51	1	148.51	0.45
ABC	214.51	1	214.51	0.65
B X Subject w. Group Error	11859.45	36	329.43	

TABLE XVI

ANALYSIS OF VARIANCE OF THE EFFECTS OF DEPRESSION, SEX AND SUCCESS-FAILURE FEEDBACK ON THE ATTRIBUTION RATINGS TO EFFORT
2 X 2 X 2

Source	SS	df	MS	F
A (Depression)	125.00	1	125.00	0.64
C (Sex)	500.00	1	500.00	2.55
AC	22.05	1	22.05	0.11
Subjects w. Group Error	7059.50	36	196.10	
B (Feedback)	378.45	1	378.45	1.64
AB	460.80	1	460.80	2.00
BC	245.00	1	245.00	1.06
ABC	530.45	1	530.45	2.30
B X Subjects w. Group Error	8290.30	36	230.29	

TABLE XVII

ANALYSIS OF VARIANCE OF THE EFFECTS OF DEPRESSION, SEX AND SUCCESS-FAILURE FEEDBACK ON THE ATTRIBUITON RATINGS TO LUCK
2 X 2 X 2

Source	SS	df	MS	F
A (Depression)	245.00	1	245.00	0.85
C (Sex)	45.00	1	45.00	0.16
AC	24.20	1	24.20	0.08
Subjects w. Group Error	10326.60	36	286.85	
B (Feedback)	336.20	1	336.20	3.40
AB	0.20	1	0.20	0.00
BC	88.20	1	88.20	0.89
ABC	24.20	1	24.20	0.24
B X Subjects w. Group Error	3558.20	36	98.83	

TABLE XVIII

ANALYSIS OF VARIANCE OF THE EFFECTS OF DEPRESSION, SEX AND SUCCESS-FAILURE FEEDBACK ON THE ATTRIBUTION RATINGS TO TASK
2 X 2 X 2

Source	SS	df	MS	F
A (Depression)	33.80	1	33.80	0.16
C (Sex)	638.45	1	638.45	3.10
AC	42.05	1	42.05	0.20
Subjects w. Group Error	7403.90	36	206.66	
B (Feedback)	14.45	1	14.45	0.12
AB	76.05	1	76.05	0.64
BC	387.20	1	387.20	3.14
ABC	7.20	1	7.20	0.06
B X Subjects w. Group Error	4441.10	36	123.36	

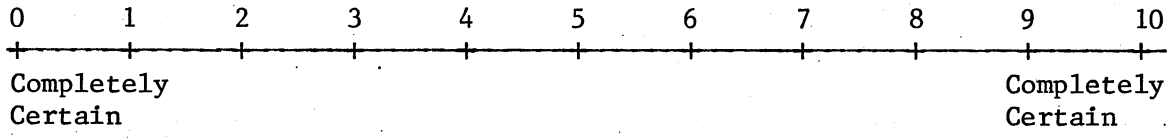
APPENDIX D

EXPECTANCY RATING SCALE

Expectancy Rating Scale

Indicate how certain you are that your solution time will be faster or slower than at least 50% of the population by circling the appropriate point on the scale.

Slower Faster



APPENDIX E

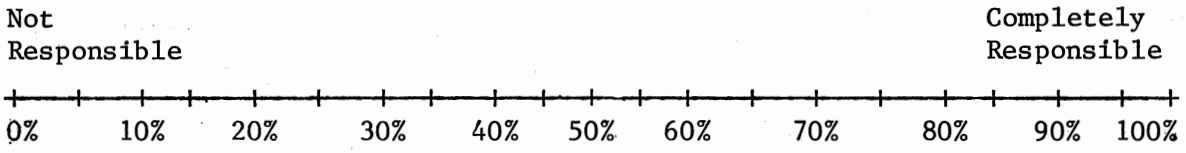
ATTRIBUTION RATING SCALES FOR SUCCESS AND FAILURE

SUCCESS

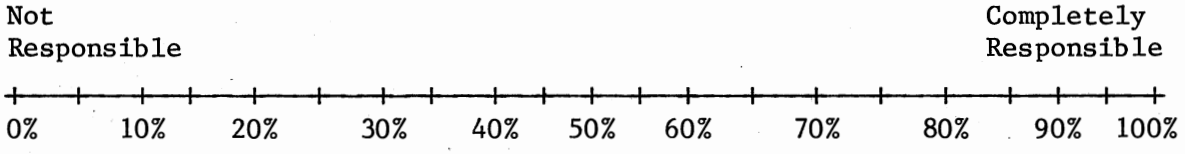
If your performance was faster than 50% or more of the population circle a percentage point on each of the scales to indicate to what extent you think your performance was determined by ability, effort, good luck, or ease of task.

THE TOTAL OF THE FOUR SCALES MUST EQUAL 100%.

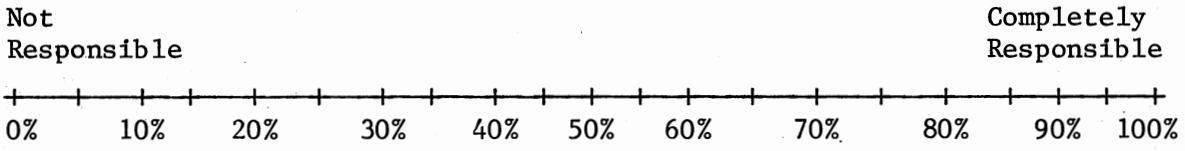
Ability



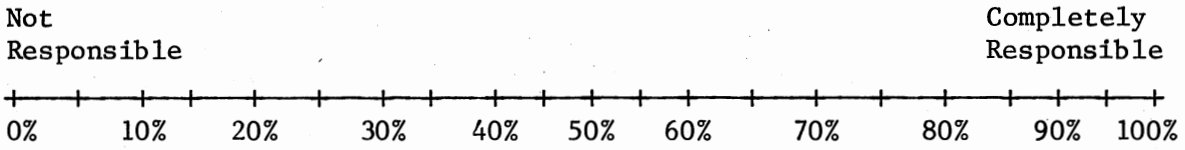
Effort



Good Luck



Ease of Task



FAILURE

If your performance was slower than 50% or more of the population circle a percentage point on each of the scales to indicate to what extent you think your performance was determined by lack of ability, lack of effort, bad luck, and task difficulty.

THE TOTAL OF THE FOUR SCALES MUST EQUAL 100%.

Lack of Ability

Not Responsible — Completely Responsible

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

Lack of Effort

Not Responsible — Completely Responsible

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

Bad Luck

Not Responsible — Completely Responsible

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

Difficulty of Task

Not Responsible — Completely Responsible

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

APPENDIX F

FEEDBACK RECALL AND PREDICTED PERFORMANCE FORM

Recall your performance feedback for each of the following test anagrams you solved and indicate that feedback by writing it next to the appropriate anagram.

PRACTICE ANAGRAMS

Course - No Feedback

Friday - No Feedback

Family - No Feedback

S = Success

F = Failure

TEST ANAGRAM	FEEDBACK
1. Column	_____
2. Pardon	_____
3. Season	_____
4. Father	_____
5. Digger	_____
6. Verbal	_____
7. Lounge	_____
8. Bridge	_____
9. Proper	_____
10. Modern	_____

Indicate the number of successes you prodict you will have on a series of 10 more anagrams by writing the number in the space below.

PREDICTED SUCCESSES ON 10 MORE ANAGRAMS_____

VITA [2]

John Nicholas Guza

Candidate for the Degree of

Doctor of Philosophy

Thesis: THE EXPECTANCIES, CAUSAL ATTRIBUTIONS, AND RECALL OF DEPRESSED AND NON-DEPRESSED SUBJECTS

Major Field: Psychology

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